Health Advisory:

Measles Recommendations for Missouri Health Care Providers

February 4, 2015

This document will be updated as new information becomes available. The current version can always be viewed at http://www.health.mo.gov

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Health Updates provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

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Health Advisory
February 4, 2015

FROM: **GAIL VASTERLING**
DIRECTOR

SUBJECT: **Measles Recommendations for Missouri Health Care Providers**

The large number of measles cases in the U.S. this year stresses the importance of vaccination. Healthcare providers should use every patient encounter to ensure that all patients are up to date on vaccinations; especially before international travel. Travelers with measles continue to bring the disease into the U.S., which can then spread to communities or groups of people who are unvaccinated.

Measles was declared eliminated in the U.S. in 2000 due to high 2-dose measles vaccine coverage, but it is still endemic, or large outbreaks are occurring, in countries in Europe (including France, the United Kingdom, Spain, and Switzerland), Africa, Asia (including India), and the Philippines. The increase in measles cases and outbreaks in the U.S. this year underscores the ongoing risk of importations, the need for high measles vaccine coverage, and the importance of prompt and appropriate public health response to measles cases and outbreaks.

Measles is a highly contagious, acute viral illness that is transmitted by contact with an infected person through coughing and sneezing. Patients are considered to be contagious from 4 days before until 4 days after the rash appears. After an infected person leaves a location, the virus remains contagious for up to 2 hours on surfaces and in the air. Measles can cause severe health complications, including pneumonia, encephalitis, and death.

Recommendations for Health Care Providers.

Exposure to measles is not a contraindication to immunization. Available data suggest that the measles vaccine, if given within 72 hours of measles exposure, will provide protection in some cases. If the exposure does not result in infection, the vaccine should induce protection against subsequent measles exposures. (*MMWR*, June 14, 2013 / 62(RR04);1-34.)

For those who travel abroad, the Centers for Disease Control and Prevention (CDC) recommends that all U.S. residents older than 6 months be protected against measles and receive the MMR vaccine, if needed, prior to departure.

- Infants 6 through 11 months old should receive 1 dose of the MMR vaccine before departure.*
- Children 12 months of age or older should have documentation of 2 doses of the MMR vaccine (separated by at least 28 days).
- Children 1 through 12 years of age may receive the MMRV vaccine for protection against measles, mumps, rubella, and varicella; however, MMRV vaccine is not recommended for the first dose in the MMR series of vaccinations for children ages 12 months through 47 months.** CDC recommends that the

MMR vaccine and the varicella vaccine be administered separately for the first dose in this age group. Providers who are considering administering MMRV vaccine should discuss the benefits and risks of both vaccination options with the parents or caregivers.

- Teenagers and adults without evidence of measles immunity[†] should have documentation of 2 appropriately-spaced doses of the MMR vaccine.

Health-care providers should maintain a high suspicion for measles among febrile patients with a rash. Patients with clinical symptoms compatible with measles (febrile rash plus cough, coryza, and/or conjunctivitis) should be asked about recent travel abroad and contact with returning travelers, or contact with someone with a febrile rash illness. Their vaccination status should also be verified. Immunocompromised patients may not exhibit rash or may exhibit an atypical rash. The incubation period for measles from exposure to fever is usually about 10 days (range, 7 to 14 days) and from exposure to rash onset is usually 14 days (range, 7 to 21 days).

Persons who have been exposed to measles should contact their healthcare provider if they develop cold-like symptoms with a fever and/or rash. They should **NOT** go to any healthcare facility without calling first. The suspect case should be kept separate from others to prevent further spread.

Isolate suspect measles case-patients and immediately report suspected cases to the local public health agency, or to the Missouri Department of Health and Senior Services (DHSS) at 573/751-6113 or 800/392-0272 (24/7). To ensure a prompt public health response, do not wait for laboratory confirmation.

The Missouri State Public Health Laboratory (MSPHL) provides laboratory support for the diagnosis of measles infections occurring in Missouri. In addition, the laboratory may refer specimens to a Vaccine Preventable Disease (VPD) reference laboratory for further diagnostic testing and characterization. (VPD laboratories are established in cooperation with public health laboratories and CDC to provide reference testing and surge capacity.) In all cases, please collect and submit a serum specimen (collected at least 72 hours after rash onset) for measles IgM serology. This serum specimen, submitted to MSPHL, will be tested for measles IgM and rubella IgM as requested by the investigating epidemiologist.

In addition, a specimen for RT-PCR testing should be collected and submitted to MSPHL along with the serum specimen, and include NP swab, throat swab, or urine (see the CDC instructions below).
Please note that a RT-PCR specimen should NOT be substituted for a serum specimen. The RT-PCR specimen will be referred to a VPD laboratory.

Measles serology instructions: http://health.mo.gov/lab/measlesrubella.php

CDC measles RT-PCR instructions (do NOT ship specimens directly to CDC):
http://www.cdc.gov/measles/lab-tools/rt-pcr.html

The sensitivity of measles IgM assays varies and may be diminished during the first 72 hours after rash onset. If the result is negative for measles IgM and the patient has a generalized rash lasting more than 72 hours, a second serum specimen should be obtained and the measles IgM test should be repeated. (AAP. *Red Book*, 2012; p. 491.)

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* Infants who receive a dose of MMR vaccine before their first birthday should receive 2 more doses of MMR vaccine, the first of which should be administered when the child is 12 through 15 months of age and the second at least 28 days later.

**In MMRV vaccine pre-licensure studies conducted among children 12-23 months of age, fever (reported as abnormal or elevated 102°F or higher oral equivalent) was observed 5-12 days after vaccination in 21.5% of MMRV vaccine recipients compared with 14.9% of recipients who received MMR vaccine and varicella vaccine separately.

[†]One of the following is considered evidence of measles immunity for international travelers: (1) documentation of age-appropriate vaccination with a live measles virus-containing vaccine: for infants aged 6–11 months, 1 dose; for persons aged ≥12 months, 2 doses; or (2) laboratory evidence of immunity; or (3) laboratory confirmation of disease; or (4) born before 1957.

For further guidance, please refer to: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm?s_cid=rr6204a1_w

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113 or 800/392-0272 (24/7).

Health Advisory:

Investigation of Influenza-Associated Parotitis

February 11, 2015

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Health Advisory
February 11, 2015

FROM: GAIL VASTERLING
DIRECTOR

SUBJECT: Investigation of Influenza-Associated Parotitis

The Centers for Disease Control and Prevention (CDC) is currently assisting multiple states, including Missouri, in a national investigation of influenza-associated parotitis. Influenza-associated parotitis has been rarely reported; however, more than 130 cases of parotitis in children and adults with laboratory-confirmed influenza have been reported this influenza season from multiple jurisdictions across the United States. The majority of these cases have tested negative for mumps or other etiologies. In an effort to ascertain cases of influenza-associated parotitis, your assistance is requested in identifying individuals with signs and symptoms of acute parotitis and obtaining diagnostic specimens for further evaluation.

If you identify a patient with acute parotitis, the Missouri Department of Health and Senior Services (DHSS) asks that you perform the following steps to assist with this investigation, in addition to performing your usual diagnostic work-up.

1. Notify your local public health agency (LPHA), or DHSS at 573/751-6113, and provide the location of your clinic/hospital, the patient's name and contact information, and identify the patient as an individual who has a clinical diagnosis of acute parotitis. The LPHA (or DHSS) will use this information to contact the patient to complete a case report form.

2. In addition to any other diagnostic testing you perform, please obtain a separate nasopharyngeal or oropharyngeal swab, AND a buccal swab, if possible and place them in 1-3 ml of viral transport media. Swab specimens should be collected using swabs with a synthetic tip (e.g., polyester or Dacron®) and an aluminum or plastic shaft. If you are unable to obtain these specimens, please inform the LPHA (or DHSS) when you report the case. A test request form is available at: https://webapp01.dhss.mo.gov/LIMSForm_APP/SelectTest.aspx

3. If your facility is served by the Missouri State Public Health Laboratory's (MSPHL's) courier system, the specimens can be sent to MSPHL via that courier. Otherwise, your LPHA (or DHSS) can assist you with sending the specimens to MSPHL for diagnostic testing related to the investigation. Please label specimens: "Parotitis Study."

4. Specimens sent to MSPHL will ultimately be sent to CDC for additional diagnostic evaluation.

DHSS requests that you continue to collect specimens through March 6, 2015, to assist with the investigation.

Please remember that parotitis is a clinical diagnosis and can be caused by a variety of pathogens including mumps, Epstein-Barr virus, human herpes virus 6, parainfluenza 1 and 3, influenza A, Coxsackie A virus, echovirus, lymphocytic choriomeningitis virus, and human immunodeficiency virus. *Staphylococcus aureus* may cause suppurative parotitis, which may be suggested by the expression of pus from Stetson's duct. Parotitis may also be caused by other non-infectious causes including medications, tumors, immunologic diseases, and obstruction of the salivary glands.

Questions should be directed to your LPHA, or to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113 or 800/392-0272 (24/7).

Health Advisory:

Ocular Syphilis

April 20, 2015

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Health Advisory
April 20, 2015

FROM: GAIL VASTERLING
DIRECTOR

SUBJECT: Ocular Syphilis

Since December 2014, at least 15 cases of ocular syphilis from California and Washington have been reported to the U.S. Centers for Disease Control and Prevention (CDC). At least five other states have suspect cases under investigation. The majority of cases have been among men who have sex with men (MSM) with HIV; and a few cases have occurred among HIV-uninfected persons, including heterosexual men and women. Several of the cases have resulted in significant sequelae including blindness.

Neurosyphilis can occur during any stage of syphilis including primary and secondary syphilis. Ocular syphilis, a clinical manifestation of neurosyphilis, can involve almost any eye structure, but posterior uveitis and panuveitis are the most common. Additional manifestations may include anterior uveitis, optic neuropathy, retinal vasculitis, and interstitial keratitis. Ocular syphilis may lead to decreased visual acuity including permanent blindness. While previous research supports evidence of neuropathogenic strains of syphilis, it remains unknown if some *Treponema pallidum* strains have a greater likelihood of causing ocular infections.

- Clinicians should be aware of ocular syphilis and screen for visual complaints in any patient at risk for syphilis. This includes MSM, HIV-infected persons, persons with risk factors, and persons with multiple or anonymous partners.
- All patients with syphilis should receive an HIV test if status is unknown or previously HIV-negative.
- Patients with positive syphilis serology (using both non-treponemal and treponmeal tests) and early syphilis without ocular symptoms should receive a careful neurologic exam, including all cranial nerves.
- Patients with syphilis and ocular complaints should receive immediate ophthalmologic evaluation.
- A lumbar puncture with cerebrospinal fluid (CSF) examination should be performed in patients with syphilis and ocular complaints.
- Ocular syphilis should be managed according to treatment recommendations for neurosyphilis. Aqueous crystalline penicillin G IV or procaine penicillin IM with probenecid for 10-14 days. See the 2010 Sexually Transmitted Diseases (STD) Treatment Guidelines at http://www.cdc.gov/std/treatment/2010/ for more information.
- If possible, **pre-antibiotic** clinical samples (whole blood, primary lesions and moist secondary lesions, CSF, or ocular fluid) should be saved and stored at -80°C for molecular typing. Please contact the Missouri Department of Health and Senior Service's (DHSS') Bureau of HIV, STD and Hepatitis at 573/751-6439 for specimen collection, storage, and transport concerns.

- Suspected cases of ocular syphilis should be reported to the local public health agency (LPHA), or to DHSS at 573/751-6439, within one business day.
- The case definition for ocular syphilis is as follows: a person with clinical symptoms or signs consistent with ocular disease (i.e. uveitis, panuveitis, diminished visual acuity, blindness, optic neuropathy, interstitial keratitis, anterior uveitis, and retinal vasculitis) with syphilis of any stage.

Please also report any cases of ocular syphilis diagnosed since December 1, 2014, to the LPHA or to DHSS.

To request technical assistance regarding ocular syphilis, please contact Craig Highfill, DHSS' Bureau of HIV, STD and Hepatitis, at 573/751-6439 or 314/877-0245.

General information about syphilis can be found online at www.cdc.gov/std/syphilis.

Health Advisory:

Measles Case in Missouri

June 4, 2015

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Health Advisory
June 4, 2015

FROM: GAIL VASTERLING
DIRECTOR

SUBJECT: **Measles Case in Missouri**

On May 31, 2015, the Missouri Department of Health and Senior Services (DHSS) received a report of a possible case of measles in Branson, Missouri involving a foreign traveler. The individual presented to the Cox Medical Center Branson Emergency Department on Sunday, May 31, 2015, with reported symptoms consistent with measles and a possible exposure to measles prior to arrival in the United States. The individual was promptly isolated from the public on May 31, and remained in isolation until no longer infectious to others. The initial serological test for measles was negative; however, measles virus was subsequently identified through molecular detection by RT-PCR on June 3, 2015.

Measles is a highly contagious, acute viral illness that is transmitted by contact with an infected person through coughing and sneezing. Patients are considered to be contagious from 4 days before until 4 days after the rash appears.

On May 31, a public health investigation was initiated by the Taney County Health Department and DHSS to identify and contact persons known to be potentially exposed to measles. Persons identified with potential exposures and determined to be susceptible to measles, were given MMR vaccine. Available data suggest that the measles vaccine, if given within 72 hours of measles exposure, will provide protection in some cases. If the exposure does not result in infection, the vaccine should induce protection against subsequent measles exposures. (*MMWR*, June 14, 2013 / 62(RR04);1-34.) However, potential transmission of the measles virus to unknown susceptible persons who had contact with the case may have occurred.

Health-care providers should maintain a high index of suspicion for measles among febrile patients with a rash. Patients with clinical symptoms compatible with measles (febrile rash plus cough, coryza, and/or conjunctivitis) should be asked about recent travel abroad and contact with returning travelers, or contact with someone with a febrile rash illness. Their vaccination status should also be verified. Immunocompromised patients may not exhibit a rash, or may exhibit an atypical rash. The incubation period for measles from exposure to fever is usually about 10 days (range, 7 to 14 days) and from exposure to rash onset is usually 14 days (range, 7 to 21 days).

Persons who have been exposed to measles should contact their healthcare provider if they develop cold-like symptoms with a fever and/or rash. They should **NOT** go to any healthcare facility without calling first. The suspect case should be kept separate from others to prevent further spread. (Note that measles virus can remain infectious in the air for up to 2 hours after an infected person leaves an area such as a waiting room.) Isolate suspect measles case-patients and immediately report suspected cases to the

local public health agency, or to DHSS at 573/751-6113 or 800/392-0272 (24/7). To ensure a prompt public health response, do not wait for laboratory confirmation.

The Missouri State Public Health Laboratory (MSPHL) provides laboratory support for the diagnosis of measles infections occurring in Missouri. In addition, the laboratory may refer specimens to a Vaccine Preventable Disease (VPD) Reference Laboratory for further diagnostic testing and characterization. (VPD laboratories are established in cooperation with public health laboratories and the Centers for Disease Control and Prevention [CDC] to provide reference testing and surge capacity.) In all cases, please collect and submit a serum specimen (collected at least 72 hours after rash onset) for a measles IgM serological test. This serum specimen, submitted to MSPHL, will be tested for measles IgM and rubella IgM as requested by the investigating epidemiologist.

In addition, a specimen for molecular detection by RT-PCR should be collected and submitted to MSPHL along with the initial serum specimen, and include NP swab, throat swab, or urine (see the CDC instructions below). Please note that a RT-PCR specimen should NOT be substituted for a serum specimen. The RT-PCR specimen will be referred to a VPD laboratory.

The sensitivity of measles IgM assays varies, and may be diminished during the first 72 hours after rash onset. If the result is negative for measles IgM and the patient has a generalized rash lasting more than 72 hours, a second serum specimen should be obtained and the measles IgM test should be repeated. (AAP. *Red Book*, 2012; p. 491.)

Measles serology instructions:
http://health.mo.gov/lab/measlesrubella.php

CDC measles RT-PCR instructions (do NOT ship specimens directly to CDC):
http://www.cdc.gov/measles/lab-tools/rt-pcr.html

For further guidance, please refer to:
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm?s_cid=rr6204a1_w

Taney County Press Releases:
http://www.taneycohealth.org/pressreleases.php

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113 or 800/392-0272 (24/7).

Health Advisory:

Reporting of Heat-Related Illnesses and Deaths

July 10, 2015

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Health Advisory
July 10, 2015

FROM: **GAIL VASTERLING**
DIRECTOR

SUBJECT: **Reporting of Heat-Related Illnesses and Deaths**

As the summer begins to heat up with higher temperatures and increased humidity, we would like to remind clinicians that heat-related illness (i.e., Hyperthermia) is a reportable condition in Missouri.

According to Missouri State Regulations 19 CSR 20-20, Hyperthermia is “a physician-diagnosed case of heat exhaustion or heat stroke.” According to the same regulation, heat exhaustion “means a reaction to excessive heat marked by prostration, weakness and collapse resulting from dehydration.” Heat stroke “means a severe illness caused by exposure to excessively high temperatures and characterized by severe headache; high fever with a dry, hot skin; tachycardia; and in serious cases, collapse, coma or death.”

Although the chief complaint may be cardiac or respiratory in nature, please interview the patient to see if environmental heat, i.e. inside or outside temperature, may be a factor. If the diagnosis includes Hyperthermia, report the condition using the Disease Case Report Form (CD-1) or the Heat-Related Illness Form and fax or email it to your local public health agency. Suspected heat-related deaths must be reported immediately.

The following website provides additional information on heat-related illness and prevention:
http://health.mo.gov/living/healthcondiseases/hyperthermia/heatprecautions.php

If you have any questions, please contact the Missouri Department of Health and Senior Services, Bureau of Environmental Epidemiology at 573/751-6102 or 866/628-9891.

Health Advisory:

Mumps Cases in Central Missouri

July 24, 2015

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Health Advisory
July 24, 2015

FROM: **GAIL VASTERLING**
DIRECTOR

SUBJECT: **Mumps Cases in Central Missouri**

On July 20, 2015, the Columbia/Boone County Department of Public Health and Human Services (CBCDPHHS) and the Missouri Department of Health and Senior Services (DHSS) received a report of suspected mumps cases among persons associated with a large university located in Central Missouri. Seven persons were reported to have presented to health care providers with parotitis (swelling of one or both salivary glands) with onset dates ranging from July 13-17, 2015. On July 22, 2015, mumps virus was confirmed for 5 of those ill persons through molecular detection by RT-PCR.
The purpose of the this DHSS Health Advisory is to alert health care providers of the possible outbreak of mumps in Missouri, and to provide guidance on clinical and laboratory diagnosis, and measures to control infection transmission.

Background

Mumps is an acute viral infection caused by the mumps virus, a member of the family *Paramyxoviridae*. Infection transmission occurs from person to person through direct contact with respiratory secretions or saliva or indirect contact through fomites. The average incubation period for mumps is 16 to 18 days, with a range of 12 to 25 days. The mumps virus has been isolated from 7 days before through 9 days after parotitis onset; however, the maximum infectiousness occurs in the 2 days before through 5 days after parotitis onset. Transmission also likely occurs from persons with asymptomatic infections and from persons with prodromal symptoms in the absence of parotitis.

The symptoms of mumps typically begin with body aches, loss of appetite, fatigue, headache, and low grade fever, and can progresses to parotitis. Parotid swelling is unilateral initially, but later becomes bilateral in the majority of cases. Earache on the side of parotitis and discomfort with eating acidic foods are common. Other salivary glands (submandibular and sublingual) under the floor of the mouth also may swell but do so less frequently. Fever usually resolves within 3 to 5 days, and parotid swelling resolves within 7 to 10 days. Morbilliform rash has been reported in mumps cases. Increased serum amylase levels can be observed during the first week of illness. One-third of mumps cases have subclinical infection or mild respiratory illness. Adolescents and adults have more severe illness than young children.

Most persons with mumps will recover completely though serious complications can occur. Complications include orchitis (testicular inflammation in males), aseptic meningitis, and rarely encephalitis, pancreatitis, deafness, and death. Mumps virus is neurotropic, but only a small fraction of cases with mumps parotitis have clinical evidence of meningitis or encephalitis. Parotitis does not develop in about half of patients with mumps meningitis. Mumps orchitis is usually unilateral, and more common in those 15 to 29 years of age. Complications of mumps infection reported in recent U.S. mumps outbreaks include: orchitis in 3.3 to 10% of adolescent and adult male cases, which may result in sterility; mastitis and oophoritis in $\leq$ 1% of adolescent and adult female cases; and other rare complications in < 1% of cases. Vaccination with the measles-mumps-rubella (MMR) and measles-mumps-rubella-varicella (MMRV) vaccines is the best way to

prevent mumps. Since introduction of the vaccine, there has been a 99% decrease in mumps cases in the U.S. Two doses of the vaccine are 88% (range: 66% to 95%) effective in protecting against mumps; one dose is 78% (range: 49% to 91%) effective. Outbreaks can still occur in highly vaccinated U.S. communities, particularly in close-contact settings, such as attending the same class, playing on the same sports team, or living in a dormitory with a person who has mumps. In recent years, outbreaks have occurred in schools, colleges, and camps. However, high vaccination coverage helps limit the size, duration, and spread of mumps outbreaks. Persons who received 2 doses of MMR are about 9 times less likely to get mumps than unvaccinated persons who have the same exposure.

Laboratory Testing

Laboratory testing should be performed if mumps is suspected. Acute mumps infection can be detected by the presence of serum mumps IgM, a significant rise in IgG antibody titer in acute and convalescent-phase serum specimens, IgG seroconversion, positive mumps virus culture, or detection of virus by real-time reverse transcription polymerase chain reaction (RT-PCR). Specimen collection should include a buccal or oral swab specimen for molecular detection by RT-PCR and viral culture; **AND** blood specimens for serologic testing. The early collection of buccal swab specimens provides the best means of laboratory confirmation, particularly among suspected mumps patients with a history of vaccination. The first (acute-phase) serum sample should be collected as soon as possible upon suspicion of mumps disease. Collect 7–10 ml of blood in a red-top or serum-separator tube (SST). Convalescent-phase serum samples should be collected about 2–3 weeks after the acute-phase sample.

Please note: Laboratory testing to confirm mumps in a highly vaccinated population may be challenging, and serologic tests should be interpreted with caution as **false negative** serologic results in vaccinated persons are common. In previously vaccinated persons (particularly with 2 vaccine doses), serum mumps IgM tests results may be negative; IgG test results may be positive at the initial blood draw; and viral detection in RT-PCR or culture may have low yield if the buccal swab is collected more than 3 days after parotitis onset. Also, **false positive** IgM serology results can occur in both unvaccinated and vaccinated persons because assays may be affected by other diagnostic entities that cause parotitis.

The Missouri State Public Health Laboratory (MSPHL) provides laboratory support for the diagnosis of mumps infections occurring in Missouri. In addition, the laboratory may refer specimens to a Vaccine Preventable Disease (VPD) reference laboratory for further diagnostic testing and characterization. VPD laboratories are established in cooperation with public health laboratories and the Centers for Disease Control and Prevention (CDC) to provide reference testing and surge capacity. For more information on laboratory testing for mumps, see: CDC Laboratory Testing for Mumps: http://www.cdc.gov/mumps/lab/index.html; CDC Questions and Answers about Lab Testing for Mumps: http://www.cdc.gov/mumps/lab/qa-lab-test-infect.html; CDC Specimen Collection, Storage, and Shipment: http://www.cdc.gov/mumps/lab/specimen-collect.html (do **NOT** ship specimens directly to CDC).

Medical providers caring for a patient suspected of having mumps should contact their local public health agency (LPHA), or DHSS at 573/751-6113 or 800/392-0272 (24/7), to report the illness and discuss testing eligibility and the sending of specimens to MSPHL. **Note:** before any specimen is sent to MSPHL, DHSS must first be consulted for approval for testing as resources are limited. Additional information regarding mumps testing at MSPHL is located at: http://health.mo.gov/lab/mumps.php.

Controlling Transmission:

Health-care providers should maintain a high index of suspicion for mumps among persons with symptoms compatible with the disease. In addition, be aware that mumps outbreaks can occur in highly vaccinated populations in high transmission settings, including schools and colleges. Therefore, mumps should not be ruled

out based on evidence of mumps immunity. Promptly report suspected cases of mumps to your LPHA, or to DHSS at 573/751-6113 or 800/392-0272 (24/7).

CDC infection control recommendations for known or suspected mumps cases include: 1) isolation of persons in the community and 2) use of droplet precautions, in addition to standard precautions, in healthcare settings. These measures should be continued for 5 days after onset of parotitis. Persons who were contacts of a mumps case during the 2 days prior through 5 days after onset of parotitis should be identified, assessed for evidence of immunity (see http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm, Table 3), and offered vaccine as appropriate. In addition, all contacts should be educated on the symptoms of mumps, instructed to watch for symptoms from 12 to 25 days after the last exposure, and told to isolate themselves and contact their medical provider and their local health department if symptoms develop.

Mumps-containing vaccine should be administered as appropriate to persons without evidence of immunity (see http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm, Table 3). Although mumps-containing vaccination has not been shown to be effective in preventing mumps in persons already exposed to mumps virus, it will prevent infection in those persons who are not yet exposed or infected. If a person without evidence of immunity can be vaccinated early in the course of an outbreak, they can be protected prior to exposure. Given the long incubation period for mumps, cases can be expected to potentially occur for at least 25 days among newly vaccinated persons who may have been infected prior to vaccination. Immunization of infected persons during the incubation period presents no increased risk of adverse events.

Prevention and control strategies should be applied in all health care settings. These measures include: assessment of the presumptive immunity of healthcare personnel; vaccination of those without evidence of immunity when appropriate; exclusion of health care personnel with known or suspected active mumps illness, as well as health care personnel who do not have presumptive evidence of immunity who are exposed to persons with mumps; and isolation of patients in whom mumps is suspected, including implementation of droplet precautions in additional to standard precautions. It is very important to avoid sharing drinks or eating utensils, especially in high risk settings for disease transmission such as households, college campuses, and sport teams.

Guidance on mumps vaccination, including determining presumptive immunity among health care workers, is available at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm.

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113 or 800/392-0272 (24/7).

Additional Guidance

CDC Mumps for Healthcare Providers
http://www.cdc.gov/mumps/hcp.html

Prevention of Measles, Rubella, Congenital Rubella Syndrome, and Mumps, 2013: Summary Recommendations of the Advisory Committee on Immunization Practices (ACIP)
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm

CDC Manual for Vaccine Preventable Diseases
http://www.cdc.gov/vaccines/pubs/surv-manual/chpt09-mumps.html

Health Advisory:

West Nile Virus Activity Widespread in Missouri

September 8, 2015

This document will be updated as new information becomes available. The current version can always be viewed at http://www.health.mo.gov

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

Health Alerts convey information of the highest level of importance which warrants immediate action or attention from Missouri health providers, emergency responders, public health agencies, and/or the public.

Health Advisories provide important information for a specific incident or situation, including that impacting neighboring states; may not require immediate action.

Health Guidances contain comprehensive information pertaining to a particular disease or condition, and include recommendations, guidelines, etc. endorsed by DHSS.

Health Updates provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

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Health Advisory
September 8, 2015

FROM: GAIL VASTERLING
DIRECTOR

SUBJECT: West Nile Virus Activity Widespread in Missouri

Current Situation

As of September 8, 2015, the Missouri Department of Health and Senior Services (DHSS) has received reports of West Nile virus (WNV) activity in all parts of the state. Seven neuroinvasive human cases (St. Louis City-3, St. Louis County-3, and Schuyler County-1) and four positive blood donors (St. Louis, St. Charles, Miller, and Cape Girardeau Counties) have recently been identified. Eight equine cases have been reported year-to-date (Howell, Oregon, Lawrence, Gentry, Cole, Warren, Washington, and Miller Counties). Equine cases can be a sentinel event for human cases, with equine cases preceding those occurring in people. Additionally, 25 dead bird sightings have been noted across the state in species that are known to be sensitive to WNV infection. Currently, no testing of sick or dead wild birds for WNV is being routinely conducted. Two Missouri counties (St. Louis and Jefferson) have reported numerous positive mosquito samples they collected and tested throughout the summer.

Background

WNV is an arthropod-borne virus (arbovirus) that is a member of the flaviviridae family. WNV is most commonly spread by bites from infected *Culex* species of mosquitoes. In addition to transmission of disease through insect bites, WNV can also be transmitted through transplants of infected organs and blood products. WNV can cause febrile illness, encephalitis, and/or meningitis.

Approximately 80% of people who become infected with WNV will not experience any symptoms of infection, and less than 1% will develop the more serious, neuroinvasive form of WNV disease. Individuals who do develop symptoms of WNV illness may experience a sudden onset of febrile illness that often includes headache, myalgia and/or arthralgia. Other commonly reported symptoms of illness include gastrointestinal tract symptoms and maculopapular rash. Serious illness can occur in people of any age. However, people over 60 years of age are at the greatest risk for severe disease. People with certain medical conditions, such as cancer, diabetes, hypertension, kidney disease, and people who have received organ transplants, are also at greater risk for serious illness. Fatigue and muscle weakness may linger for weeks or months following acute illness caused by WNV.

Laboratory Testing

Although WNV is the most common cause of arboviral encephalitis in the United States, there are several other arboviral encephalitides present in the country and in other regions of the world. Several pathogens cause clinical symptoms and presentations similar to WNV infection. If a patient is experiencing illness consistent with WNV infection, serum and/or cerebral spinal fluid specimens should be submitted to the Missouri State Public Health Laboratory (MSPHL) for analysis. There is no charge for this testing.

Laboratory results help health care providers explain and provide therapy for lingering fatigue and muscle weakness. Positive test results also enable quantification of the WNV disease burden in Missouri, providing seasonal, geographic, and demographic patterns regarding human morbidity and mortality. These data, in turn, give local public health agencies the ability to assess available programs and priorities within their communities.

The most recommended screening assay for laboratory diagnosis of human WNV is the IgM assay. MSPHL offers the IgM microsphere immunoassay (MIA) and IgM enzyme-linked immunosorbent assay (ELISA) for the identification and differentiation of WNV and St. Louis encephalitis virus (SLEV). Due to low specificity, IgG antibody tests are not useful in the diagnosis of acute WNV infection.

Because the IgM MIA and ELISA tests can cross-react among the various species in the flavivirus genus (e.g., WNV, SLEV, dengue, yellow fever, Japanese encephalitis), they should be viewed as screening tests only. For a case to be considered confirmed, serum samples that are antibody-positive on initial screening should be evaluated by a more specific test. Currently, the plaque reduction neutralization test (PRNT) is the recommended test for differentiating among flavivirus infections. For definitive results, paired acute and convalescent specimens are recommended.

Instructions for submitting diagnostic specimens for serological testing for WNV and SLEV are available on the MSPHL website at http://www.health.mo.gov/lab/westnile.php. MSPHL specimen pickup and courier delivery information is available at http://www.health.mo.gov/lab/courierservices.php.

Prevention of WNV

The best way to avoid illness due to WNV infection is to avoid mosquito bites. When going outdoors, using an insect repellent on the skin that contains DEET, picaridin, or another EPA-approved ingredient that is effective for mosquitoes can help prevent bites. Appropriate clothing, such as long pants and sleeves (when weather permits) can minimize exposed skin. Permethrin is a repellent that can be applied to clothing or gear that will be used outdoors. It is a long-lasting product that can withstand multiple washes before re-applying. Do not use permethrin directly on the skin.

Around the home, several precautions can be taken to reduce WNV risk, primarily removing standing water from yards. Mosquitoes that carry WNV prefer to breed in locations that have standing water, such as birdbaths, buckets, flower pots, tires, and pool covers. By emptying these items or changing the water weekly, the number of mosquitoes around homes can be reduced. To prevent mosquitoes from entering homes, it is recommended that residents use air conditioning if it is available. Screens should be installed and maintained on all windows and doors around the home to minimize mosquito entry.

Mosquito control activities are most often handled at the local level, such as through county or city government. The type of mosquito control methods used by a program depends on the time of year, the type of mosquitoes to be controlled, and the habitat structure. Methods can include elimination of mosquito larval habitats, application of insecticides to kill mosquito larvae, or spraying insecticides from trucks or aircraft to kill adult mosquitoes. Local mosquito or vector control programs can provide information about the type of products being used and the criteria they use to trigger mosquito control spraying. Contact information may be found in the blue (government) pages of the phone book.

Additional Guidance

- Information for Health Care Providers, Centers for Disease Control and Prevention (CDC) http://www.cdc.gov/westnile/healthcareproviders/index.html
- West Nile Virus in the United States: Guidelines for Surveillance, Prevention, and Control (CDC) http://www.cdc.gov/westnile/resources/pdfs/wnvGuidelines.pdf

- West Nile Virus (WNV) Fact Sheet (CDC) http://www.cdc.gov/westnile/resources/pdfs/wnvFactsheet_508.pdf
- DHSS WNV website http://www.health.mo.gov/living/healthcondiseases/communicable/westnilevirus/index.php
- Missouri WNV Data and Statistical Reports http://www.health.mo.gov/living/healthcondiseases/communicable/westnilevirus/reports.php (These data are updated weekly, April through October)
- Before the Swarm: Guidelines for the Emergency Management of Vector-Borne Disease Outbreaks (Association of State and Territorial Health Officials) http://www.astho.org/programs/environmental-health/natural-environment/before-the-swarm/

Questions should be directed to DHSS' Office of Veterinary Public Health at 573/526-4780 or 800/392-0272 (24/7).